

**MODELING BIOLOGICAL SYSTEMS****ABSTRACT**

Biological systems are modeled using formal languages and theorem provers and  
5 model checkers and term rewriting systems. The models include rules that express a  
substitution of at least one symbol by at least another symbol. The symbols represent  
elements of the biological system, and the rules are expressed in a manner that, for example,  
enables an inference engine to infer alternative results from the system based on an initial  
hypothetical state.

10 Inference engines are also applied to symbolically simulate, test properties, and  
explore the biological system. Abstractions and algorithms can be employed to enable  
symbolic calculation of state sets for the biological system.

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